

MCG Surge Protection

Model 160MXT Installation Instructions

Important Warranty Information

MCG surge protectors are designed to work at specific voltages and configurations, for example, at 120/208VAC, wye. Installation of the surge protector improperly on a power system will automatically void the warranty.

1. Confirm Model with Power Service.

Measure \emptyset -N, \emptyset - \emptyset , \emptyset -Gnd with voltmeter to confirm application voltage prior to installation.

<u>160MXT</u>	<u>Power Service</u>	<u>Description</u>	<u>Wiring Diagram (pg. 2)</u>
120T	120/240 VAC	1 ph, 3w + gnd, split phase	1
120Y	120/208 VAC	3 ph, 4w + gnd, Wye	2
220Y	220/380 VAC	3 ph, 4w + gnd, Wye	2
240Y	240/415 VAC	3 ph, 4w + gnd, Wye	2
240DCT	240/120/120 VAC	3 ph, 4w + gnd, High-leg Delta	3
277Y	277/480 VAC	3 ph, 4w + gnd, Wye	2
347Y	347/600VAC	3 ph, 4w + gnd, Wye	2
240D	240 VAC	3 ph, 3w + gnd, Delta	4
480D	480 VAC	3 ph, 3w + gnd, Delta	4
600D	600 VAC	3 ph, 3w + gnd, Delta	4

2. Disconnect Power before Installation.

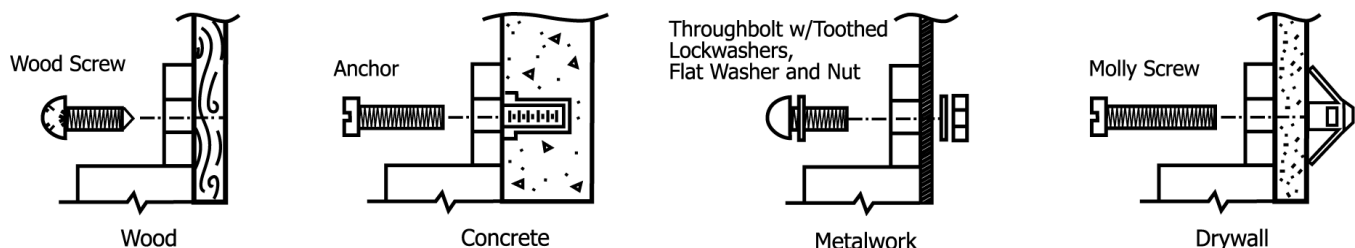
All wiring to be done in accordance with National Electric Code and local codes by qualified electricians.

Note: This device features internal protection that will disconnect the surge protective component at the end of its useful life but will maintain power to the load - now unprotected. If this situation is undesirable for the application, follow the instructions for servicing the device.

3. Mounting.

For best performance, mount protector as close to service panel as possible. Secure unit to mounting surface.

Use proper fasteners as indicated. (Fasteners not supplied.)



4. Wiring and Circuit Breaker Recommendations.

Cut the pre-installed 10 AWG power cable back as short as possible. **Electrician Note:** Use a dedicated 30A, UL489 Listed circuit breaker to connect the protector. Circuit breaker voltage and interrupt rating must be suitable for the service.

Fig. 1

Single Phase

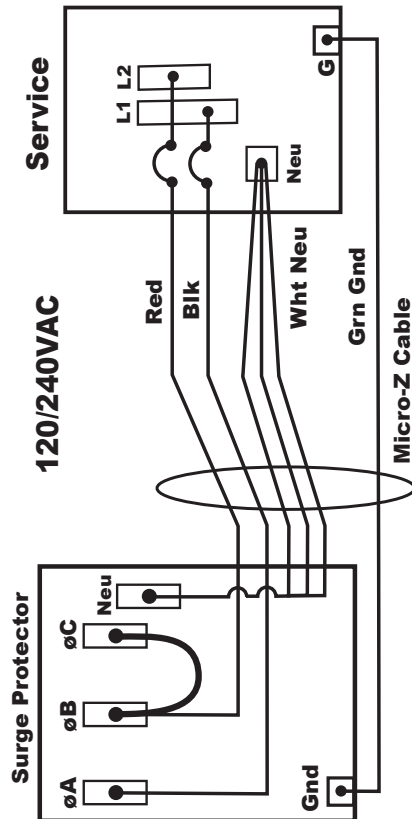


Fig. 2

Three Phase, Wye

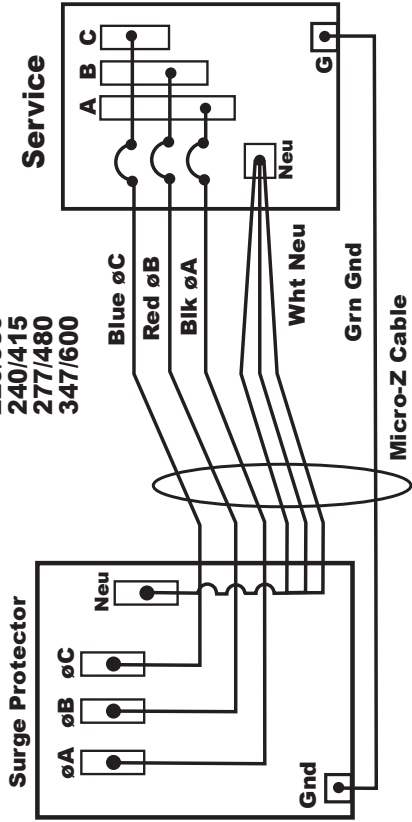
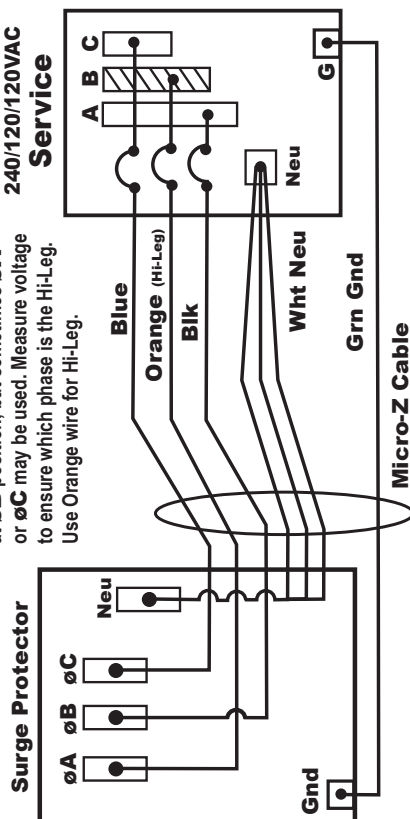


Fig. 3

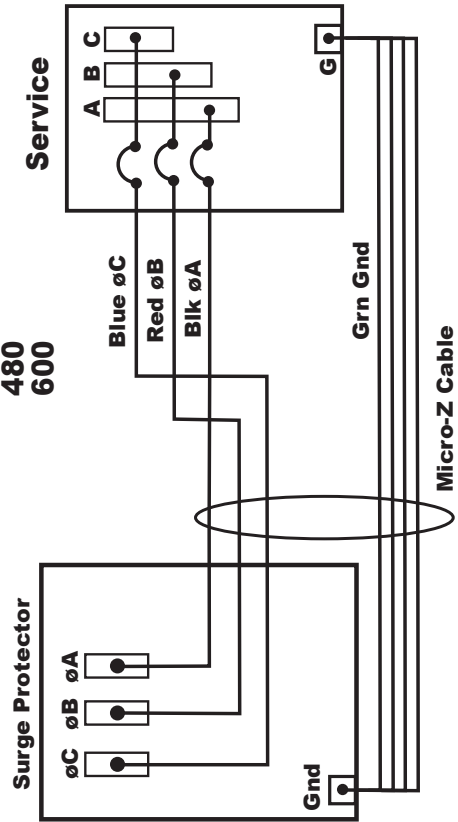
-240 DCT (HI-Leg)



Hi-Leg (208VAC L-N) is connected at øB position, but sometimes øA or øC may be used. Measure voltage to ensure which phase is the Hi-Leg. Use Orange wire for Hi-Leg.

Fig. 4

Three Phase, Delta



5. Powering up the Protector.

To prevent possible electrical hazard, door on protector MUST be closed before applying power. Upon power up, the front panel will show the following:

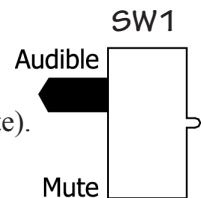
- Green PROTECTION PRESENT light should be illuminated
- Red PROTECTION REDUCED light should be off.
- If counter indicates a non-zero value, reset it by pressing SW2. See Step 8.



6. Beeper Mute Feature. See Diagram on Page 4.

To access the mute switch:

- Loosen clamps and open door.
DO NOT TOUCH ANYTHING – HIGH VOLTAGE PRESENT.
- Observe circuit board mounted on back of door.
- Locate slide switch at lower left position on circuit board marked SW1 (Audible/Mute).
- Move switch to desired position. Switch is factory set to AUDIBLE position.
- Close door and secure clamps.

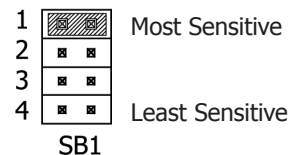


7. Counter Trigger Sensitivity. See Diagram on Page 4.

The counter sensitivity is preset at the factory to its most sensitive position. If you are observing too many counts on the display, you can reduce the sensitivity of the counter. Protection is not affected.

To access the counter's sensitivity adjustment:

- Loosen clamps and open door – DO NOT TOUCH ANYTHING – HIGH VOLTAGE PRESENT.
- Observe circuit board mounted on back of door.
- Locate shorting block located at top right of circuit board. Note: The shorting block is a small, black plastic jumper that connects two points together electrically. To remove it, simply pull it straight out.
- For the highest sensitivity, move the shorting block to the top-most position-Position 1.
- For the lowest sensitivity, move the shorting block to the bottom-most position-Position 4.
- Close door and secure clamps.



8. Counter Reset Feature. See Diagram on Page 4.

This feature sets the front panel event counter back to zero. The counter reset capability is generally only exercised at time of installation, where power up may have caused an event. A monthly log is recommended to keep track of transient occurrences.

To reset event counter:

- Loosen clamps and open door – DO NOT TOUCH ANYTHING – HIGH VOLTAGE PRESENT.
- Observe circuit board mounted on back of door.
- Locate switch on bottom of board labeled SW2.
- Press SW2 to reset counter back to zero.
- Close door and secure clamps.



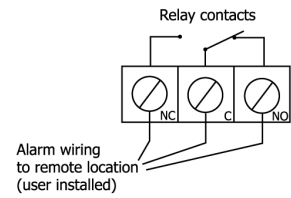
9. Remote Relay Feature. See Diagram Below.

This feature enables you to operate a remote beeper/indicator light for monitoring the surge protector status from a remote location.

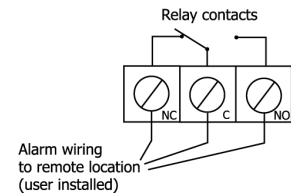
To access remote relay terminal block:

- Loosen clamps and open door.
DO NOT TOUCH ANYTHING – HIGH VOLTAGE PRESENT.
- Observe circuit board mounted on back of door.
- Locate TB1 at the left bottom of the circuit board.
- There are three terminals, each labeled NC (Normally Closed), C (Common), and NO (Normally Open). These are 1 Form C contacts rated at 1A, 30VDC. Maximum switched power: 30W/60VA.
- Connect remote monitoring circuit (user supplied) to the appropriate terminals.
- Close door and secure clamps.

Normal Operation (100% Protection)



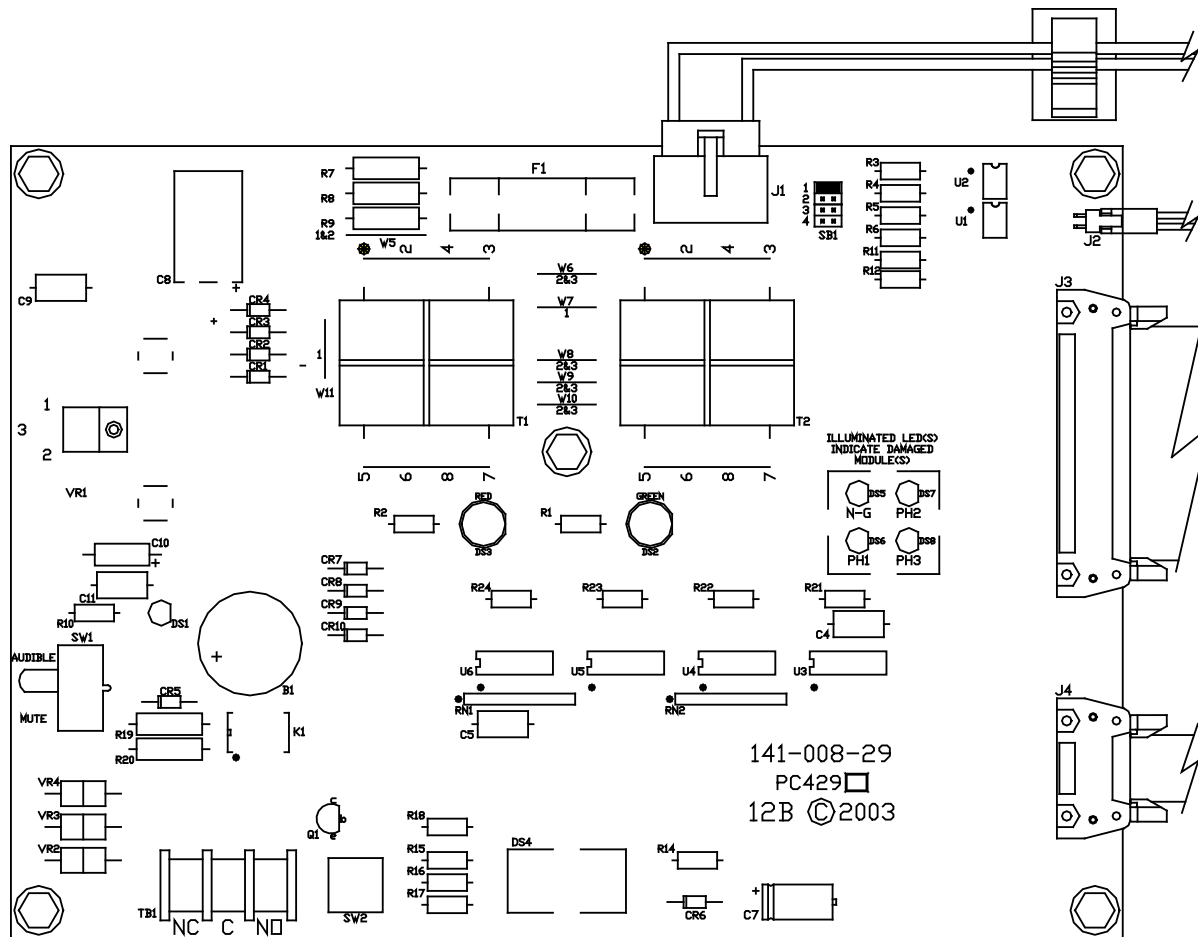
Reduced Protection (or Power Off)



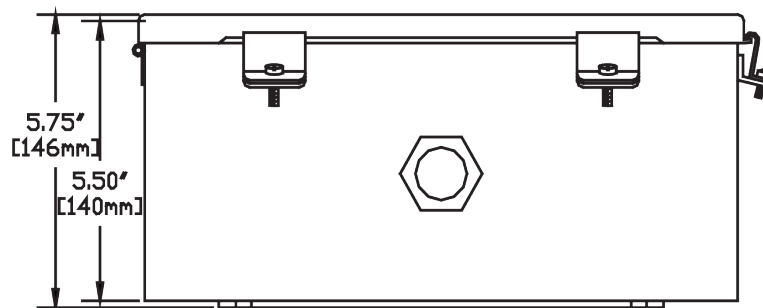
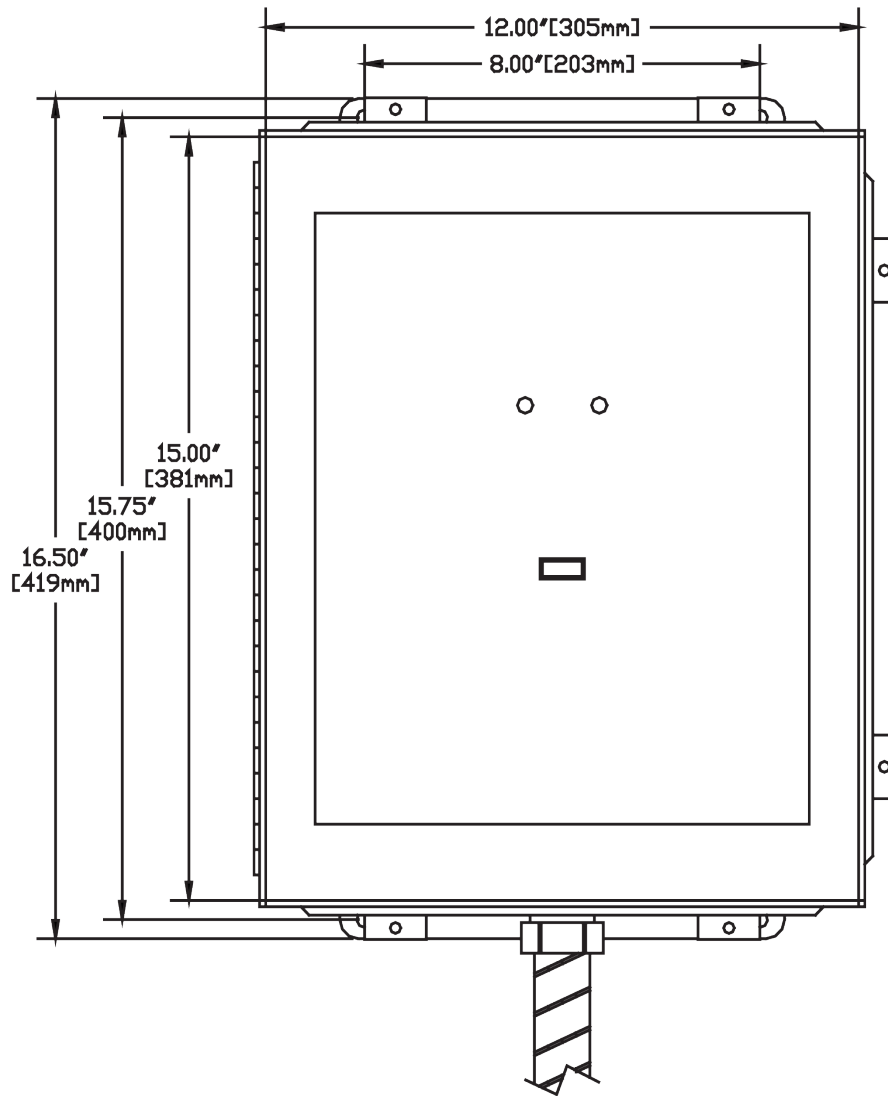
Note 1: Class 2 Wiring Only. 14-22 AWG.

Note 2: Recommended screw torque: 9 in-lbs.

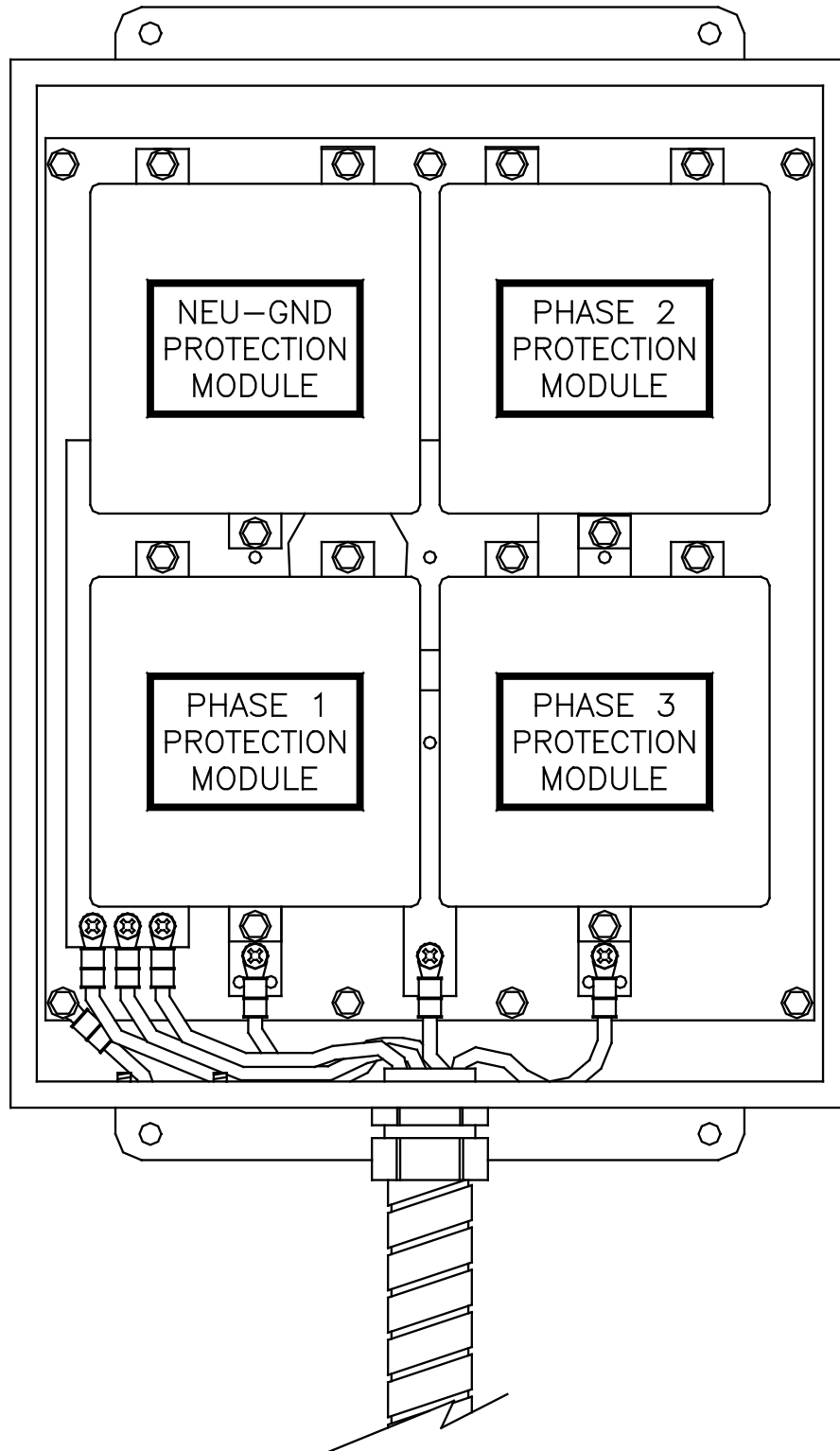
Circuit Board Located on Back of Door.



Dimensions



Module Positions



10. Troubleshooting and Maintenance.

MCG surge protectors do not require any periodic maintenance. However, if the red “Protection Reduced” light is illuminated on the front panel, a fault condition exists and the beeper will sound.

When this occurs, follow the procedure below:

- a. Loosen clamps and open door. **WARNING: RISK OF ELECTRIC SHOCK .
DO NOT TOUCH ANYTHING. SERVICE TO BE PERFORMED BY QUALIFIED PERSONNEL.**
- b. Refer to diagram on page 4. Locate the four red LED’s (lights) in the middle-right position on the circuit board on back of door. Each red LED corresponds to a protection module.
 1. If the left top LED (Neutral to Ground) is on – replace the left top module.
 2. If the right top LED (PHASE 2) is on – replace the right top module.
 3. If the left bottom LED (PHASE 1) is on – replace the left bottom module.
 4. If the right bottom LED (PHASE 3) is on – replace the right bottom module.

NOTE: Delta models do not contain a Neutral – Ground module.

- c. Once you have noted which module(s) need to be replaced. **REMOVE POWER FROM PROTECTOR.**
- d. Unplug the small, ribbon cable from the module.
- e. Unscrew the three mounting bolts (use a 5/16” hex driver) located at the base of the module.
- f. Make sure the replacement module is the same voltage and type as the original one. This is verified by matching the part numbers (i.e. 169-xxx-xx).
If the numbers do not match, contact the factory at 1-800-851-1508.
- g. Plug the ribbon cable in and mount module securely. Note: The ribbon cable connector is polarized so it will only plug in one way. Push connector in firmly but do not force as the mating connector may be damaged.
- h. Close door and secure clamps.
- i. Apply power by turning circuit breaker back on.
- j. Observe green “Power Present” light on and red “Protection Reduced” light off.

Front Panel Monitoring and Diagnostics



WARNING - RISK OF ELECTRIC SHOCK

Disconnect power before servicing. Service to be performed by qualified personnel only.